

## **REMARKS**

### **I. Status**

In this reply, Applicants amend claims 1 and 10; and cancel claims 24 and 25 without prejudice or disclaimer. Claims 1-4, 6, and 9-23 are thus currently pending. The changes to the claims are supported by the originally-filed application. No new matter has been added.

In the outstanding Office Action, claims 1-4, 6, and 9-25 were rejected under 35 U.S.C. § 102(e) as being anticipated by Hsu (U.S. Patent Application Publication No. 2004/0000727 A1, "Hsu") or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Hsu in view of Honda et al. (U.S. Patent Application Publication No. 2003/0178711 A1, "Honda") or Roberts et al. (U.S. Patent No. 6,335,548 B1, "Roberts").

### **II. Rejection of Claims 1-4, 6, and 9-23 Under § 102(e)**

Applicants respectfully request favorable reconsideration of the rejection of claims 1-4, 6, and 9-23 as being anticipated by Hsu for any one or more of the reasons set forth next.

First, Applicants submit herewith a Declaration under § 1.131 showing (1) that constructive reduction to practice occurred in Malaysia on July 3, 2001, as evidenced by the filing by the same inventors in Malaysia of a patent application essentially identical to the present application, and (2) that actual reduction to practice occurred in Malaysia at some point before October 4, 2002, as evidenced by a statement that the inventors made a prototype of an embodiment of the invention at some point before October 4, 2002, based on a technical drawing dated December 15, 2001, showing a view similar to views illustrated in the present application. Therefore, since Hsu is a § 102(e)

reference with an effective filing date of October 4, 2002, that neither claims (nor shows, for the reasons discussed below) the claimed invention, and since Malaysia is a WTO country, Applicants' Declaration under § 1.131 overcomes Hsu.

Second, Applicants submit that Hsu, which is directed to a LED package (¶0001), at best teaches that its extending arm 18 and separate arm 19 are flush with the sides and bottom of its LED package 60 (see Figs. 11 and 12). Hsu does not teach a "base protruding from . . . the middles of the sides and the bottom (see e.g. fig. 11 and 12)," as asserted at pages 2-3 of the Office Action, because construing the term "protrudes" broadly enough to read on Hsu's flush surfaces would essentially amount to construing that term, given the plain meaning of "protruding," as meaning "does not protrude." Indeed, as discussed in the last reply, non-limiting, exemplary definitions of "protruding" include "to push or thrust outward" or "to jut out; project" (see The American Heritage® Dictionary of the English Language, Fourth Edition, Houghton Mifflin Company, 2004) and "extending out above or beyond a surface or boundary" (see WordNet® 3.0, Princeton University, 2008), but a structure that is flush with the boundary, as in Hsu, exhibits precisely the opposite property, i.e., that structure does *not* "push or thrust outward," does *not* "jut out; project," and is *not* "extending out above or beyond a surface or boundary." Thus, Applicants submit that Hsu fails to teach at least that "the base . . . protrudes from a bottom surface and two other side surfaces of the housing," as recited in amended independent claim 1, and that "the electrically conductive frame . . . protrudes to two other side surfaces and a bottom surface of the housing," as recited in amended independent claim 10.

Third, in the spirit of moving prosecution forward and to even more clearly describe embodiments of Applicants' invention, Applicants amend claim 1 to recite that "the base . . . protrudes . . . so as to extend past the bottom surface and the two other side surfaces of the housing," and claim 10 to recite that "the electrically conductive frame . . . protrudes . . . so as to extend past the two other side surfaces and the bottom surface of the housing." In view of the foregoing discussion, and further in view of the admission at page 3 of the Office Action that if protruding means "to extend beyond the surface/to jut out beyond the surface, then Hsu does not teach . . . a protruding portion," Applicants submit that Hsu fails to teach at least these features of amended independent claims 1 and 10.

Therefore, for any one or more of the foregoing reasons, Applicants respectfully request favorable reconsideration of the rejection of independent claims 1 and 10 and their dependent claims 2-4, 6, 9, and 11-23 as being anticipated by Hsu.

### III. Rejection of Claims 1-4, 6, and 9-23 Under § 103(a)

Applicants respectfully request favorable reconsideration of the rejection of claims 1-4, 6, and 9-23 as being unpatentable over Hsu in view of Honda or Roberts for any one or more of the reasons set forth next.

Initially, Applicants submit, as discussed above, that Hsu is a § 102(e) reference with an effective filing date of October 4, 2002, that does not claim the present invention, and that Applicants' Declaration under § 1.131 overcomes Hsu. For that reason alone, Applicants respectfully request favorable reconsideration of the § 103(a) rejection of claims 1-4, 6, and 9-23 as being unpatentable over Hsu in view of Honda or Roberts.

In addition, Applicant appreciatively acknowledges the admission at page 3 of the Office Action that if protruding means “to extend beyond the surface/to jut out beyond the surface, then Hsu does not teach . . . a protruding portion,” but respectfully disagrees with the Office Action when it asserts that, assuming such a meaning, “Roberts and Honda teach using a protruding portion to dissipate heat (see e.g. Honda item 6 and Roberts item 204)” so that as a result “it would have been obvious . . . to have formed the device of Hsu such that all four sides and the bottom portion of the lead frame protrude from the housing.”

First, Applicants submit that even if, *arguendo*, Honda and/or Roberts teach “a protruding portion to dissipate heat,” none of Honda and Roberts teach “that all four sides and the bottom portion of the lead frame protrude from the housing,” as asserted in the Office Action. In particular, none of Honda and Roberts teach that “the base . . . protrudes from *a bottom surface and two other side surfaces* of the housing,” as recited in amended independent claim 1, and that “the electrically conductive frame . . . protrudes to *two other side surfaces and a bottom surface* of the housing,” as recited in amended independent claim 10. Honda, which is directed to a semiconductor laser device (¶0001), discloses a “main lead frame 6 consist[ing] of . . . left and right wing portions 6c and 6d serving for heat dissipation” (¶0033). However, Honda’s left and right *wing* portions 6c and 6d are only arranged on the left and right sides of its semiconductor laser device 1 (see Figs. 1-3 and 5), not on the bottom of device 1. Roberts, which is directed to a semiconductor optical radiation package (abstract), discloses a “heat extraction member 204 [that] transfers heat out of the encapsulation 203 to the ambient environment” (c. 9, ll. 37-39) and is arranged either solely on one

side of the encapsulation 203 (see Figs. 2-4, 8, 10, 20, and 21), solely on two opposite sides of the encapsulation 203 (see Figs. 16a, 16b, 17b, 18, and 19b), solely through the backside of encapsulant 203 (see Figs. 22 and 23), or as a separate heat sink 2402 with fins 2404 apparently screwed underneath the package 200 (see Fig. 24), but never on *both* bottom and side surfaces, as recited in amended independent claims 1 and 10.

Second, Applicants submit that neither Honda nor Roberts can be properly combined with Hsu, to modify Hsu by incorporating protrusions in Hsu as asserted in the Office Action, because Hsu teaches away from using protrusions to begin with. Specifically, Hsu teaches in Step 6 to “[c]ut the frame 10 according to the size of each of the cell 11” (¶0024), and explains that “[t]he encapsulant 50 has a *rectangle* base 51, which corresponds to the cell 11 in size” (¶0023, emphasis added). Therefore, Hsu clearly teaches that its cutting should be smooth (to yield a rectangular shape) and thus that there should be no protrusions (as illustrated in Figs. 11 and 12) since any such protrusions would preclude the desired rectangular shape. Moreover, Hsu also teaches away from allowing protrusions by using flush surfaces in an invention addressing problems associated with the presence of a “protrudent portion,” which Hsu asserts can have “very poor [thermal conductivity]” (¶0003). Finally, Hsu teaches away even further from allowing protrusions by expressly pointing out that its invention, with its protrusion-free, flush surfaces, already has “excellent efficiency of thermal dissipation” (¶0026), so that the motivation set forth at page 3 of the Office Action “to enable heat to be quickly dissipated from the device” would not actually prompt one of ordinary skill in the art to modify Hsu, much less by adding protrusions to Hsu.

Therefore, in view of the admission at page 3 of the Office Action that if protruding means “to extend beyond the surface/to jut out beyond the surface, then Hsu does not teach . . . a protruding portion,” and for either or both of the reasons set forth above, Applicants submit that Hsu, Honda, and Roberts, whether taken alone or in any proper combination, fail to teach or suggest at least that the base protrudes from “a *bottom surface and two other side surfaces* of the housing,” as recited in independent claim 1, and that the electrically conductive frame protrudes “to *two other side surfaces and the bottom surface* of the housing,” as recited in amended independent claim 10. Accordingly, Applicant respectfully request favorable reconsideration of the rejection of independent claims 1 and 10 and their dependent claims 2-4, 6, 9, and 11-23 as being unpatentable over Hsu in view of Honda or Roberts.

#### IV. Concluding Remarks

Because the Office Action contains characterizations of the claims and the background art with which Applicants do not necessarily agree, Applicants decline to subscribe to any such characterizations unless expressly set forth in this reply.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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